1       Based on the foregoing disclosure of the preferred embodiments of the

2   present invention, many modifications and variations of the present invention will

3   be apparent to those skilled in the art.  Accordingly, it is to be understood that,

4   within the scope of the appended claims, the present invention may be practiced

5   otherwise than as specifically described above.

6

7

8                                       Claims

10       1.       An environment manager providing for the controlled execution of

11   respective application programs in primary and alternate application execution

12   environments within a computer system operating under the control of an

13   operating system including a primary input queue and a primary output routine,

14   said environment manager comprising:

15          a) an alternate input queue for storing input data for applications

16   executing in the alternate application environment;

17          b) an alternate output routine for managing the processing of output

18   data provided by applications executing in said alternate application environment;

19   and

20          c) a control routine coupled to said operating system to selectively

21   provide for the concurrent use of said primary input queue and said primary

22   output routine or of said alternate input queue and said alternate output routine,

23   said control routine further providing for the transfer of the output data processed

24   by said alternate output routine to said primary output routine.

25

1      2.      The environment manager of Claim 1 wherein said control routine

2    provides a display buffer area and wherein said alternate output routine provides

3    for the processing of said output data provided by said applications executing said

4    alternate application environment into said display buffer area.

5

6      3.      The environment manager of Claim 2 wherein said alternate output

7    routine provides for the replication of said output data provided by said

8    applications executing said alternate application environment to a

9    communications port for sharing with another computer system.

10

11     4.      The environment manager of Claim 3 wherein said alternate input

12   queue is coupled to said control routine for storing input data received from said

13   another computer system by way of said communications port.

14

15     5.      The environment manager of Claim 1 wherein said operating

16   system provides a primary display area and wherein said control routine provides

17   an alternate display area, wherein said operating system provides for a primary

18   display structure defining the contents of said primary display area, including a

19   frame of an alternate display window, and wherein said control routine provides

20   for an alternate display structure defining the contents of said alternate display

21   area, said control routine providing for the presentation of said alternate display

22   area within said frame of said alternate display window.

23

24     6.      The environment manager of Claim 5 wherein said alternate input

25   queue stores input data correlated to said alternate display window.

1        7.      A computer system providing for the alternate execution of first and

2  second sets of application programs, said computer system comprising:

3             a) a processor including an input device and an output device;

4             b) an operating system executable by said processor to support the

5  execution of programs, said operating system including a graphical user interface

6  coupleable through an output driver to said output device and an input interface

7  including an input queue coupleable through an input driver to said input device,

8  said operating system including a first list of a first set of application programs

9  executable by said processor and a second list of application program windows

10  corresponding to said first set of application programs; and

11             c) an environment manager executable by said processor including

12  a third list of a second set of application programs and a fourth list of application

13  program windows corresponding to said second list of application programs,

14  execution of said environment manager providing for the inclusion of said

15  environment manager in said first and second sets and for selectively swapping

16  with said operating system said first and third lists and said second and fourth lists

17  to switch between the execution of said first and second sets of application

18  programs.

19

20       8.      The computer system of Claim 7 wherein said environment

21  manager determines to swap between the execution of said first and second sets

22  of application programs based upon the relative amount of data in said input

23  queue for said first and second sets of application programs.

24

1    9.    The computer system of Claim 7 or 8 wherein said environment

2    manager determines to provide said operating system with an alternate output

3    driver to couple said operating system to said output device, said alternate output

4    driver providing for the processing of output data provided through the execution

5    of said second set of application programs.

6

7    10.    A method of executing computer application programs in primary

8    and alternate application execution environments in a computer system under the

9    control of an operating system wherein input events are provided through the

10    operating system to application programs and wherein output events are provided

11    to a display driver, said method comprising the steps of:

12    a) establishing a primary display driver for receiving and processing

13    output events provided from a first application program executing in a primary

14    application execution environment;

15    b) establishing an alternate display driver for receiving and

16    processing output events provided from a second application program executing

17    in an alternate application environment;

18    c) selecting for execution by said computer system, subject to the

19    control of the operating system, a predetermined one of said first and second

20    application programs; and

21    d) selectively providing an output event to said primary display driver

22    reflecting the output events provided from said application programs executing

23    in said alternate application environment.

24

1       11.    The method of Claim 10 wherein input events to the operating

2    system include a plurality of types of input events distinguished by source

3    identifying data, said method further comprising the steps of:

4          a) receiving a predetermined input event for said second application

5    program;

6          b) providing for the scheduled execution of said second application

7    program; and

8          c) providing for the coupling of said alternate display driver to said

9    operating system to receive and process output events upon scheduled execution

10   of said second application program.

11

12       12.    The method of Claim 11 wherein the operating system includes a

13   communications path to another operating system, said method further

14   comprising the steps of:

15         a) duplicating output events provided to said alternate display

16   driver; and

17         b) sending said duplicated output events to said communications

18   path for transfer to said another operating system.

19

20       13.    The method of Claim 12 further comprising the steps of:

21         a) receiving primary and alternate input events, said alternate input

22   events including input events received from said communications path;

23         b) providing said primary and alternate input events to said

24   operating system with respective predetermined identifications; and

1        c) distinguishing between said primary and alternate input events

2    in selecting among said first and second application programs to schedule for

3    execution by said computer system.

4

5        14.    The method of Claim 13 wherein said step of distinguishing includes

6    the steps of:

7        a) associating said primary and alternate input events with primary

8    and alternate execution environments;

9        b) identifying a predetermined application within either of said

10    primary and alternate execution environments for receipt of a predetermined input

11    event; and

12        c) establishing said predetermined application as ready to run within

13    either of said primary and alternate execution environments.

14

15        15.    A method of operating a computer system suitable for the execution

16    of application programs, said method comprising the steps of:

17        a) providing a first window list structure defining the logical

18    appearance of a first set of display windows associated with a first set of

19    application programs;

20        b) providing a second window list structure defining the logical

21    appearance of a second set of display windows associated with a second set of

22    application programs;

23        c) providing for the drawing of the logical appearance of said first

24    set of display windows in a display space; and

1           d) providing for the drawing of the logical appearance of said

2 second set of display windows within a predetermined display window included

3 within said first set of display windows.

4

5       16.     The method of Claim 15 wherein said first and second sets of

6 application programs are executed by a host computer system and wherein said

7 method includes the steps of:

8           a) maintaining the logical appearance of said first set of display

9 windows private to said host computer system, exclusive of said predetermined

10 display window; and·

11           b) sharing the logical appearance of said second set of display

12 windows with a quest computer system.

13

14       17.     The method of Claim 16 wherein said first and second sets of

15 application programs are responsive to input events, said method further

16 comprising the steps of:

17           a) independently managing input events for said first and second

18 sets of application programs; and

19           b) independently identifying respective predetermined applications

20 of said first and second sets of applications for receipt of input events.

21

22       18.     The method of Claim 17 wherein said step of independently

23 managing input events includes the steps of managing first and second input

24 queues for said first and second sets of applications, respectively.

25

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1    19.    The method of Claim 18 further comprising the steps of:

2       a) receiving a predetermined input event;

3       b) identifying the destination of said predetermined input event as

4 being a predetermined application within either of said first and second sets of

5 applications;

6       c) storing said predetermined input event in a corresponding one

7 of said first and second input queues; and

8       d) updating said predetermined application to be ready to run.

9

10    20.    The method of Claim 19 further comprising the steps of:

11       a) determining to execute said predetermined application;

12       b) selecting a corresponding one of said first and second window

13 list structures for use in connection with the execution of said predetermined

14 application;

15       c) establishing said operating system to draw within a corresponding

16 one of said display space and said predetermined window in connection with the

17 execution of said predetermined application.